See Downing and Kimball (1982), Russell, et al. (1986), and Drayton (1980). The type of noncompliance being modeled here is what Drayton refers to as O&M noncompliance: day-to-day discharges in excess of the allowed amount.

[2]Formally, $B^i(w_i) = \max_x[q_i x_i - c(x_i, w_i)]$, where x_i is the firm's product output and q_i is the price it receives for its output. The strictly convex function c(.) gives the firm's costs as a function of its output and pollutant discharge levels.

[3]The presence of w_i in the audit probability function does not contradict the assumption that levels of pollutant discharge are not known with certainty by the central authority prior to conducting audits.

[4]Formally, the additional decision variables are the audit policy parameters θ and the penalty policy parameters δ. Both these sets of parameters influence firms' pollutant discharge levels. The objective function is $\Sigma B_i(w_i) - D(\Sigma w_i) - C(\theta,\delta)$, where $C(\theta,\delta)$ represents the costs of enforcement.

[5]I am ignoring the problem of calculation the proper tax given uncertainty regarding firm's cost functions, and the associated incentives for strategic behavior by firms.

[6]A good discussion of the problem of measuring pollutant discharge is contained in Russell, *et al.,* (1986, pp. 76-86).

ble 2. Joint effects of SEQNUM and NINSP on citations.

mple = All safety and health inspections (N=299,295).

Mean NUMCITE value.

INSP	SEQNUM: 1	2	3	4	5	6	7	8	9	10-14	15-19	20+
1	4.2	.	.	.	.	.	.	.	.	.	.	.
2	6.8	1.6	.	.	.	.	.	.	.	.	.	.
3	7.9	2.9	1.9	.	.	.	.	.	.	.	.	.
4	8.7	3.5	3.0	1.9	.	.	.	.	.	.	.	.
5	8.9	4.0	3.4	2.7	2.1	.	.	.	.	.	.	.
6	9.4	4.1	4.1	3.0	2.7	2.1	.	.	.	.	.	.
7	9.6	4.9	4.5	3.2	3.0	2.3	2.2	.	.	.	.	.
8	10.1	5.2	4.5	3.5	3.2	3.0	2.5	2.4	.	.	.	.
9	9.8	4.8	4.9	3.8	3.5	2.6	2.7	2.4	2.3	.	.	.
.0-14	10.1	5.3	5.1	3.9	3.6	3.1	2.7	2.5	2.5	2.5	.	.
.5-19	10.6	6.4	5.1	3.5	4.5	3.8	3.3	2.9	2.8	2.4	2.4	.
20+	7.2	4.5	5.8	4.7	5.1	4.1	3.8	3.6	2.7	2.9	2.4	2.4

Number of inspections.

NINSP	SEQNUM: 1	2	3	4	5	6	7	8	9	10-14	15-19	20+
1	49609	.	.	.	.	.	.	.	.	.	.	.
2	27383	27383	.	.	.	.	.	.	.	.	.	.
3	14179	14179	14179	.	.	.	.	.	.	.	.	.
4	8490	8490	8490	8490	.	.	.	.	.	.	.	.
5	5266	5266	5266	5266	5266	.	.	.	.	.	.	.
6	3231	3231	3231	3231	3231	3231	.	.	.	.	.	.
7	2114	2114	2114	2114	2114	2114	2114	.	.	.	.	.
8	1362	1362	1362	1362	1362	1362	1362	1362	.	.	.	.
9	935	935	935	935	935	935	935	935	935	.	.	.
10-14	1940	1940	1940	1940	1940	1940	1940	1940	1940	4560	.	.
15-19	406	406	406	406	406	406	406	406	406	2030	1017	.
20+	321	321	321	321	321	321	321	321	321	1605	1605	3778

remember that 90% of all plants are inspected 5 or fewer times. Once we have controlled for the total number of inspections of an establishment (NINSP), it is clear that the number of citations declines with repeated inspections (increasing values of SEQNUM). The reduction in citations following the first inspection of a plant is very large: (on average, - 5 citations.)

In order to add controls for-additional characteristics of the inspection and of the plant, we perform regression analysis of the determinants of the total number of citations NUMCITE, reported in full in Table A2. In particular we want to test the hypothesis that the reduction in violations across sequential inspections is the same across the groups of plants selected for differential enforcement intensity. In each pair of equations the A version does not include the SEQNUM*NINSP interactions, the B version does include them. Equations 1A and 1B include inspection controls (INORIGIN, INTYPE, INYR); equations 2A and 2B include both inspection and plant controls (SIC, ESTSIZE). For all safety and health inspections, adding plant controls does not reduce the deterrent effect of additional inspections [or substantially change other coefficients] though it increases the adjusted R^2 of the OLS equations from .19 to .20.

Table 3 reports the estimates of the effect of inspections on reducing future citations from Table A2. We report both the interacted and non-interacted estimates. At the bottom of the

Table 3. Effect of past inspections on number of citations by total number of plant inspections (1972-83).

Dependent variable = NUMCITE [mean=4.2, sd=6.7].

Sample = All sample and health inspections [N=299,295].

Total # Inspections	Effect of Inspection #: 1	2	3	4	5+
2	-2.59 (.05)	-			
3	-2.76 (.07)	-1.05 (.07)			
4	-3.15 (.09)	- .52 (.09)	- .69 (-09)		
5+	-3.23 (.07)	- .47 (.07)	- .52 (.07)	- .32 (.06)	- .028 (.005)
Mean Effect	-2.86 (.04)	- .79 (.04)	- .50 (.05)	- .27 (.05)	- .028 (.005)
F-test pr>F	.000	.000	.146		

Source = Table A3, columns 2A, 2B.

table, we provide the estimated mean effect of that sequence number inspection and the F-test of the hypothesis that the effects estimated for the different values of NINSP are equal.

The average effect of a first inspection in the sample is a reduction of -2.9 citations, with a range of -2.6 to -3.2 citations.[14] The plants that ultimately receive more inspections have the greater reductions. Following a second inspection, the average incremental reduction in citations in this sample is -.8, with a range of -1.1 to -0.5 citations. The pattern of variation across NINSP is reversed in this case, so that the cumulative reductions after two inspections are very close (-3.7 to -3.8 citations) across NINSP sub-groups. The average incremental reductions after 3 and 4 inspections are -.5 and -.3, respectively. Each additional inspection beyond the fourth is associated with an incremental reduction of -.3 to -.4 citations. Though the effects for the first and second inspections are significantly different from each other, the magnitude of the differences is very small. The precision in the estimates arises from the very large sample size [N = 299,295].

It is important to note that these calculations of incremental effects of repeated inspections assume that the reduction in citations induced by an inspection is permanent;

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14. We only measure this directly for plants experiencing two or more inspections.

therefore, they provide a conservative estimate of the effect of repeat inspections. Alternatively, if the effect is short-lived, the sum of the coefficients in the SEQNUM series (rather than the value of individual coefficients) represents the full OSHA effect. The former interpretation seems more appropriate when compliance predominantly involves making capital investments with long time horizons; the latter seems more appropriate when compliance primarily involves incurring operating expenditures.

The relevance of this reduction in OSHA violations for the improvement of workplace safety has been challenged by a long succession of authors. For this reason, we are particularly interested in the analysis of health inspections.

4.2 Longitudinal Patterns of Citations and Hazard Exposure Rates in Health Inspections

Table 4 presents data on citation performance in sequential health inspections, controlling for total number of health inspections of an establishment. Health inspections have fewer citations on average than safety inspection, but the pattern of change with additional inspections follows the pattern for safety inspections: citations strongly decline with sequential health inspections, particularly in the first four health inspections of a plant.

We performed regression analysis, controlling separately for past health and safety inspections, total health and total

Table 4. Joint effects of HSEQNUM and HNINSP on citations.
Sample = All health inspections (N=63,383).

A. Mean value: NUMCITE.

HNINSP	HSEQNUM: 1	2	3	4	5	6	7	8	9	10+
1	2.5	.	.	.	.	.	.	.	.	.
2	3.7	1.7	.	.	.	.	.	.	.	.
3	4.0	2.1	1.7	.	.	.	.	.	.	.
4	4.0	2.3	1.7	1.8	.	.	.	.	.	.
5	4.3	2.2	1.8	1.8	1.9	.	.	.	.	.
6	4.4	2.1	2.0	1.5	1.6	2.1	.	.	.	.
7	5.2	2.1	1.8	1.4	1.3	1.3	1.3	.	.	.
8	3.8	2.8	1.5	1.3	1.3	1.3	1.4	2.1	.	.
9	4.3	2.1	2.5	1.2	1.6	0.8	0.9	1.5	2.3	.
10+	3.7	1.9	2.0	1.8	2.3	1.5	2.3	1.0	1.7	1.5

B. Number of inspections.

HNINSP	HSEQNUM: 1	2	3	4	5	6	7	8	9	10+
1	25047	.	.	.	.	.	.	.	.	.
2	6969	6969	.	.	.	.	.	.	.	.
3	2673	2673	2673	.	.	.	.	.	.	.
4	1280	1280	1280	1280	.	.	.	.	.	.
5	686	686	686	686	686	.	.	.	.	.
6	368	368	368	368	368	368	.	.	.	.
7	220	220	220	220	220	220	220	.	.	.
8	149	149	149	149	149	149	149	119	.	.
9	74	74	74	74	74	74	74	74	74	.
10+	173	173	173	173	173	173	173	173	173	666

safety inspections conducted during the panel period, and inspection and plant factors. Table A4 reports the full analysis of the determinants of NUMCIT in health inspections. Table 5 summarizes the estimated deterrent effects of past health inspections on the number of citations. As the sample size declines with the two health sub-samples, the null hypothesis of equal SEQNUM coefficients across NINSP categories is increasingly accepted.

The average number of citations in health inspections during the sample period was 2.5, (s.d.=5.0). The estimated mean incremental effects of the first four inspections were -1.2, -.4, -.1, -.02, with each additional inspection beyond the fourth reducing citations by -.09. The estimated effect of the first inspection ranged from -.9 to -1.3, with no discernible pattern across NINSP sub-groups. The null hypothesis of equality across coefficients is rejected at the 7% level for the first inspection effects. For the second and third inspections, the coefficients are not significantly different from one another. Again, the cumulative effects of first and second inspections vary less across NINSP than the individual inspection effects.

Finally we examine the data on worker exposure measures gathered during health inspections. As noted earlier, 42% of all health inspections report samples. Table 6 reports the pattern of taking samples across health inspection sequence number [HSEQNUM] controlling for total number of health inspections

Table 5. Effect of past health inspections on number of citations, by total number of health inspections (1972-83).

Dependent variable = NUMCITE [mean=2.5, sd=5.0].

Sample = All health inspections [N=63,385].

Total # Health Inspections	Effect of Health Inspection #: 1	2	3	4	5+
2	-1.27 (.09)				
3	- .96 (.13)	- .54 (.13)			
4	- .85 (.19)	- .45 (.19)	- .20 (.19)		
5+	-1.24 (.107)	- .20 (.19)	- .18 (-17)	.034 (.150)	- .09 (.03)
Mean Effect	-1.16 (.07)	- .35 (.09)	- .12 (.11)	- .019 (.130)	- .09 (.03)
F-test pr>F	.07	.27	.99		

Source = Table A6, columns 2A, 2B.

Table 6. Joint effects of HSEQNUM and HNINSP on exposure violations.

Sample I = All health samples (N=63,383).

A. Percentage of inspections with samples

HNINSP	HSEQNUM: 1	2	3	4	5	6	7	8	9	10+
1	0.38	.	.	.	.	.	.	.	.	.
2	0.55	0.32	.	.	.	.	.	.	.	.
3	0.64	0.41	0.33	.	.	.	.	.	.	.
4	0.67	0.47	0.38	0.30	.	.	.	.	.	.
5	0.69	0.51	0.45	0.36	0.28	.	.	.	.	.
6	0.73	0.49	0.49	0.38	0.37	0.29	.	.	.	.
7	0.68	0.50	0.50	0.41	0.37	0.26	0.21	.	.	.
8	0.68	0.52	0.44	0.40	0.31	0.30	0.28	0.32	.	.
9	0.84	0.57	0.55	0.47	0.38	0.31	0.30	0.30	0.28	.
10+	0.66	0.55	0.62	0.45	0.48	0.40	0.39	0.35	0.37	0.26

Sample II = All health inspections with samples (N=26,386).

B. Mean value: NUMBAD

HNINSP	HSEQNUM: 1	2	3	4	5	6	7	a	9	10+
1	1.1	.	.	.	.	.	.	.	.	.
2	1.4	1.5	.	.	.	.	.	.	.	.
3	1.8	1.6	1.8	.	.	.	.	.	.	.
4	1.7	1.4	1.9	2.2	.	.	.	.	.	.
5	2.2	1.7	1.7	1.8	2.6	.	.	.	.	.
6	2.0	1.5	2.0	1.9	2.2	3.8	.	.	.	.
7	2.5	1.4	2.0	1.9	2.1	2.8	2.6	.	.	.
8	1.8	2.3	1.9	1.4	1.2	1.4	1.4	.	.	.
9	2.5	1.6	2.3	1.5	1.6	2.6	2.2	3.2	4.4	.
10+	1.6	1.6	1.0	1.6	1.6	1.1	1.4	1.8	1.9	2.3

C. Number of inspections with samples

HNINSP	HSEQNUM: 1	2	3	4	5	6	7	a	9	10+
1	9395	.	.	.	.	.	.	.	.	.
2	3836	2218	.	.	.	.	.	.	.	.
3	1721	1107	869	.	.	.	.	.	.	.
4	853	601	480	383	.	.	.	.	.	.
5	472	353	310	246	.	.	.	.	.	.
6	269	182	180	140	137	108	.	.	.	.
7	149	109	110	91	81	58	16	.	.	.
8	102	78	65	59	46	44	41	17	.	.
9	62	42	41	35	28	23	22	22	21	.
10+	114	96	108	77	83	69	68	60	64	171

[HNINSP]. The percentage of inspections with samples declines with the sequence number, controlling for HNINSP. For a given HSEQNUM, the percentage of plants with samples increases with the total number of health inspections. Focusing only on the plants with samples, we see in panel B of Table 6 that the number of samples in violation does not follow any discernible pattern. With the addition of controls for total safety inspections and for inspection and plant characteristics, however, the familiar pattern emerges in Table 7. With the sample size declining further, the precision is declining, notably for estimates of the effects of inspections following the first one. The effect of the first inspection is on average to reduce the number of overexposures by -.42, with all the estimates close to the average. Only one estimate of the second inspection effect is significant, -.37 overexposures, for the group receiving three inspections. For the third inspection, the average reduction is -.13 overexposures. The estimated effects of the fourth and subsequent inspections are small and very imprecise.

5. Summary and Discussion of the Results

In this paper, we have examined the impact of OSHA enforcement on company compliance with the agency's regulations in the manufacturing sector. Particular emphasis was directed at OSHA's effect in the health area, a relatively unexplored topic in the OSHA literature. We were able to estimate the impact of OSHA enforcement on citations and worker overexposures to

Table 7. Effect of past health inspections on number of worker samples in violation, by total number of health inspections.

Dependent variable = NUMBAD [mean=1.5, sd=3.4].

Sample = All health inspections with samples [N=26,386].

Total # Health Inspections	Effect of Health Inspection #: 1	2	3	4	5+
2	-.42 (.09)				
3	-.38 (.13)	-.37 (.15)			
4	-.44 (.17)	.17 (.20)	-.28 (.22)		
5+	-.48 (.15)	-.03 (.16)	-.22 (.17)	.10 (.16)	-.01 (.04)
Mean Effect	-.42 (.06)	-.13 (.09)	-.13 (.13)	-.06 (.15)	-.01 (.04)
F-test pr>F	.95	.07	.84		

Source = Table A8, columns 2A, 2B.

hazardous substances measured during health inspections. The analysis in Table 5 suggests that in manufacturing plants that ever received a health inspection, OSHA health inspections have reduced the number of citations on average by 28% relative to the number of citations observed during first health inspections.[15]

Of greater interest, perhaps, is the estimate that OSHA health inspections have reduced measured overexposures by 23% among workers in inspected manufacturing establishments where exposure samples were taken.[16] This estimate is simply meant to be suggestive -- the specific figure should not be interpreted literally. It is important to note that our methodology does not allow us to estimate indirect effects of inspections on other non-inspected plants, for example in the same industry or the same geographical region. Also, the analysis is strictly limited to federal OSHA inspections: it does not include the enforcement effects in state plan states. Consequently our estimates of the total effects of OSHA's health initiatives are substantially under-estimated.

These results are particularly noteworthy because this is

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15. We calculated that citations fell by .82 citations from an average of 2.93 citations in first [health] inspections, by applying the effect measured in SEQNUM2 to all plants receiving a first inspection etc.

16. We calculated a reduction of .30 samples in violation from an average number of documented overexposures in first inspections of 1.33.

the first econometric study examining OSHA's impact on overall health quality of regulated establishments. The results contrast sharply with the extensive literature arguing that OSHA has a small (and insignificant) effect on improving workplace safety.

The next question is, can we derive any policy implications from the analysis? We are particularly interested in examining OSHA's policy allocating inspection resources. To draw policy inferences, however, we meed to extrapolate beyond the observations in the sample. The results of our tests for sample selection bias provide some justification for making such inferences.

We stated earlier that our sample is a non-random selection of establishments: heavy violators are inspected more intensively. We originally hypothesized that OSHA's may select plants for inspection in part on the basis of characteristics that affect compliance performance, but which are unobservable to us the researchers. As a result, the responsiveness of firms to a given sequence number inspection might vary across the inspection sub-groups experiencing different intensities of enforcement, even after controlling for variations in observable characteristics. We found only weak support for the hypothesis. Systematic differences in responsiveness to enforcement were captured substantially with observable characteristics.[17]

Examining plant responses to inspections, we observe one particularly striking result: a large reduction in violations following the first inspection occurs across all NINSP categories. Even when the estimated effects are significantly different across NINSP, the differences are small and generally decreased when the effects of first and second inspections were combined. Though we have not directly estimated the effect of the first inspection for plants that were never inspected or were once inspected, the similarity of the results across the other groups provides some support for the inference that the effect would be comparable for these establishments.

The large and significant effect of the first inspection in reducing future citations and exposure violations greatly contrasts with the small measured effect of inspections number 5 and beyond (within the 12-year period). The results suggest that <u>on the margin</u>, substantial gains would occur if inspection resources were reallocated from the intensive inspection strategy to the extensive inspection strategy, allowing more first inspections to occur. The analysis suggests that a reallocation from a fifth or greater health inspection to

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17. This result is consistent with the requirement imposed by the Barlow decision that the agency must have a clearly defined targetting plan, for the courts to eschew a lengthy procedure showing cause when entry is challenged by the establishment.

a first health inspection could generate a further reduction in the number of citations by 1.1 (+.12) [mean = 2.5] and in the number of measured worker overexposures by 0.4 (+.3) [mean = 1.5]. This conclusion only applies <u>on the margin</u>: as anticipated future inspection patterns change, firms' responses to current inspections presumably would change. A general equilibrium model of the process, including the generation of expectations of future enforcement activity, is necessary to determine how much reallocation would be optimal.

REFERENCES

1. Bartel, Ann P. and Lacy Glenn Thomas, "Direct and Indirect Effects of Regulations: A New Look at OSHA's Impact". Journal of Law and Economics. Vol.XXVIII, April 1985. .

2. Cambridge Research Reports, Inc. Public and Worker Attitudes toward Carcinogens and Cancer Risk. Cambridge MA. 1978.

3. Freedman, Audrey. Industry Response to Health Risk. The Conference Board. New York. 1981.

4. Gray, Wayne. "Matching Plants within the OSHA MIS Dataset." Mimeo, Clark University. 1986.

5. Jones, Carol A. et.al. "Methods for Analyzing Compliance with OSHA Health Standards." Final Report to OSHA/DOL. 1986

6. Kochan, Thomas et. al. The Effectiveness of Union-Management Safety Committees. W. E. Upjohn Institute for Employment Research. Kalamazoo MI. 1977.

7. McCaffrey, David, et. al. "Modeling Complexity: Using Dynamic Simulation to Link Regression and Case Studies." Journal of Policy Analysis and Management, Vol. 4, No. 2, 1985.

8. Mendeloff, John. Regulating Safety. MIT Press, 1976.

9. Robertson, Leon S. and J. Phillip Keeve, "Worker Injuries: The Effects of Workers' Compensation and OSHA Inspections." Journal of Health Politics, Policy and Law, Vol. 8, No. 3, Fall 1983.

10. Russell, Louise. "Safety Incentives in Workmen's Compensation Insurance." Journal of Human Resources. Spring 1974.

11. Smith, Robert S. "The Impact of OSHA Inspections on Manufacturing Injury Rates." Journal of Human Resources. Vol. 14, Spring 1979.

12. Viscusi, W. Kip. "The Impact of Occupational Safety and Health Regulations, 1973-1983." Rand Journal of Economics, Winter 1986.

13. Viscusi, W. Kip, "The Impact of Occupational Safety and Health Regulation." Bell Journal of Economics. Spring 1979.

Table A1. Descriptive statistics.

Sample = all safety and health inspections (N=299,295).

Name	Description	Mean	(std. dev.)
NUMCITE	Number of citations on this inspection (includes health and safety citations).	4.15	6.7
SIC2	SIC code (2-digit).	30.36	5.6
SEQNUM	Sequence number of this inspection of this establishment (Dummy variables).		
SEQNUM1	=1 if [Sequence number ⩾ 1]	.385	
SEQNUM2	⩾ 2]	.219	
SEQNUM3	⩾ 3]	.128	
SEQNUM4	⩾ 4]	.080	
SEQNUM5	⩾ 5]	.188	
SEQNUMC	Continuous variable: =SEQNUM=5 if SEQNUM>5; =0 otherwise.	.841	4.111
NINSP	Number of total inspections of this establishment (Dummy variables)		
NINSP1	=1 if [Total inspections ⩾ 1]	.163	
NINSP2	⩾ 2]	.183	
NINSP3	⩾ 3]	.142	
NINSP4	⩾ 4]	.114	
NINSP5	⩾ 5]	.398	
NINSPC	Continuous variable: =NINSP-5 if NINSP>5 =0 otherwise.	1.998	6.521
SEQNUM*NINSP	Interactions between inspection Sequence number and total number of inspections		
SEQ2*NINSP2	=1 if SEQNUM2=1 and NINSP2=1]	.09	
SEQ2*NINSP3	SEQNUM2=1 and NINSP3=1]	.10	
SEQ2*NINSP4	SEQNTJM2=1 and NINSP4=1]	.09	
SEQ2*NINSP5	SEQNUM2=1 and NINSP5=1]	.34	
SEQ3*NINSP3	SEQNUM3=1 and NINSP3=1]	.05	
SEQ3*NINSP4	SEQNUM3=1 and NINSP4=1]	.06	
SEQ3*NINSP5	SEQNUM3=1 and NINSPS=1]	.29	
SEQ4*NINSP4	SEQNUM4=1 and NINSP4=1]	.03	
SEQ4*NINSP5	SEQNUM4=1 and NINSP5=1]	.24	
SEQS*NINSP5	SEQNUMS-1 and NINSP5=1]	.19	

Table A1. (continued).

Name	Description	Mean
ACCIDENT	=1 if [Origin of inspection = accident]	.023
COMPLAINT	= complaint]	.220
GENERAL	= general]	.535
FOLLOWUP	= followup]	.222
YR72	=1 if [Year of inspection = 72]	.017
YR73	= 73]	.067
YR74	= 74]	.108
YR75	= 75]	.120
YR76	= 76]	.107
YR77	= 77]	.103
YR78	= 78]	.092
YR79	= 79]	.084
YR80	= 80]	.084
YR81	= 81]	.072
YR82	= 82]	.088
YR83	= 83]	.055
HEALTH	=1 if [Category of inspection = health]	.212
SAFETY	= safety]	.788
ESTSIZE1	=1 if [Number of employees < 20]	.246
ESTSIZE2	= 20-99]	.402
ESTSIZE3	= 100-499]	.251
ESTSIZE4	≥ 500]	.101

Table A2. Determinants of citations.

Sample = All health and safety inspections (N=299,295).

Dependent variable = NUMCITE (number of citations), [mean=4.15, sd=6.7].

(Standard errors are below coefficients in parentheses)

	1A	1B	2A	2B
CONSTANT	3.40 (.05)	3.41 (.05)	5.18 (.10)	5.21 (.10)
<u>Enforcement</u>				
SEQNUM2	-2.84 (.04)		-2.86 (.04)	
SEQNUM3	-.79 (.04)		-.79 (.04)	
SEQNUM4	-.50 (.05)		-.50 (.05)	
SEQNUM5	-.15 (.05)		-.27 (.05)	
SEQNUMC	-.034 (.004)	-0.34 (.007)	-.028 (.005)	- .028 (.005)
SEQ2*NINSP2		-2.59 (.06)		-2.59 (.06)
SEQ2*NINSP3		-2.74 (.07)		-2.76 (.07)
SEQ2*NINSP4		-3.12 (.09)		-3.15 (.09)
SEQ2*NINSP5		-3.19 (.07)		-3.23 (.07)
SEQ3*NINSP3		-1.08 (.07)		-1.05 (.07)
SEQ3*NINSP4		- .53 (.09)		- .52 (.09)
SEQ3*NINSP5		- .45 (.07)		- .47 (.07)
SEQ4*NINSP4		- .73 (.09)		- .69 (.09)
SEQ4*NINSP5		- .52 (.07)		- .52 (.07)
SEQ5*NINSP5		- .21 (.06)		- .32 (.06)

Table A2. (continued).

	1A	1B	2A	2B
Plant Enforcement Controls				
NINSP2	2.21 (.04)	2.09 (.05)	2.10 (.04)	1.97 (.05)
NINSP3	3.09 (.05)	3.13 (.06)	2.84 (.05)	2.86 (.06)
NINSP4	3.81 (.05)	3.96 (.07)	3.41 (.05)	3.56 (.07)
NINSP5	4.76 (.05)	4.87 (.06)	4.15 (.05)	4.28 (.06)
NINSPC	.011 (.003)	.012 (.003)	-.011 (.003)	-.012 (.003)
Inspection Controls				
HEALTH	-1.87 (.03)	-1.87 (.03)	-1.92 (.03)	-1.92 (.03)
ACCIDENT	-2.98 (.08)	-2.99 (.08)	-3.20 (.08)	-3.20 (.08)
COMPLAINT	- .71 (.03)	- .72 (.03)	- .90 (.03)	- .90 (.03)
FOLLOWUP	-4.85 (.03)	-4.87 (.03)	-4.88 (.03)	-4.89 (.03)
YR72	.86 (.10)	.84 (.10)	.72 (.10)	.71 (.10)
YR73	1.22 (.07)	1.21 (.07)	1.16 (.07)	1.16 (.07)
YR74	1.68 (.06)	1.68 (.06)	1.76 (.06)	1.76 (.06)
YR75	2.44 (.06)	2.43 (.06)	2.59 (.06)	2.59 (.06)
YR76	2.92 (.06)	2.91 (.06)	3.07 (.06)	3.07 (.06)
YR77	1.64 (.06)	1.63 (.06)	1.80 (.06)	1.79 (.06)
YR78	1.41 (.06)	1.40 (.06)	1.63 (.06)	1.62 (.06)

Table A2. (continued).

	1A	1B	2A	2B
Inspection Controls (continued)				
YR79	1.59	1.57	1.75	1.75
	(.06)	(.06)	(.06)	(.06)
YR80	1.57	1.55	1.73	1.72
	(.06)	(.06)	(.06)	(.06)
YR81	.91	.90	1.00	.99
	(.06)	(.06)	(.06)	(.06)
YR82	- .08	-.08	- .06	- .06
	(.06)	(.06)	(.06)	(.06)
Plant Controls				
ESTSIZE1			-1.76	-1.78
			(.05)	(.05)
ESTSIZE2			- .98	-1.00
			(.05)	(.05)
ESTSIZE3			- .36	- .38
			(.05)	(.05)
SIC2	No	No	Yes	Yes
R^2 (adjusted)	.186	.186	.196	.196